CLAIMS

Having thus described the invention, what is claimed is:

1. A light clock, comprising:

   (a) a light pulse transmission device having a light pulse entry point and a light pulse exit point;

   (b) a light pulse source for generating a light pulse into the light pulse entry point;

   (c) a light pulse detector for detecting the light pulse at the light pulse exit point and providing an output signal upon light pulse detection; and

   (d) a counter which is incrementally increased upon receipt of the output signal of the light pulse detector.

2. A light clock, as in Claim 1, wherein the counter initiates the light pulse source to generate another light pulse.

3. A light clock, as in Claim 1, wherein the light pulse detector initiates the light pulse source to generate another light pulse.

4. A light clock, as in Claim 1, further comprising a controller which provides a user interface to the light clock.

5. A light clock, as in Claim 4, wherein the controller initiates the light pulse source to generate another light pulse.

6. A light clock, as in Claim 1, wherein the light pulse transmission device has a mirrored surface with at least two points of reflection.

7. A light clock, as in Claim 6, wherein the light pulse transmission device has a housing which is circular.

8. A light clock, as in Claim 1, wherein the light pulse transmission device has a mirrored surface with at least four points of reflection.

9. A light clock, as in Claim 8, wherein the light transmission device has a housing which is circular.

10. A light clock, as in Claim 1, wherein the light pulse transmission device is a fiber optic cable having a known length.

11. A light clock, as in Claim 1, wherein the light pulse source is a pulsed laser.

12. A light clock, as in Claim 1, wherein the light pulse detector detects the light pulse at the light pulse entry point and provides a light pulse initiation signal to the counter.

13. A light clock, as in Claim 1, wherein the counter is incrementally increased by a distance between the light pulse entry point and the light pulse exit point divided by the speed of light.

14. A light clock, as in Claim 1, wherein the light pulse detector comprises at least two light pulse detectors at separate points along a light pulse path in the light pulse transmission device with a first light pulse detector providing a light pulse detector initiation signal and a second providing a light pulse detector output signal and the counter is incrementally increased with a time difference between the first light pulse detector initiation signal and the second light pulse detector output signal.

15. A light clock, comprising:

(a) a light pulse transmission device having a light pulse source entry point;

(b) a light pulse source for generating a light pulse onto the light pulse source entry point;

(c) a light pulse amplifier within the closed loop for amplifying the light pulse;

(d) a light pulse detector for detecting the light pulse within the closed loop and providing an output signal upon light pulse detection; and

(e) a counter which is incrementally increased upon receipt of the output signal of the light pulse detector.

16. A light clock, as in Claim 15, wherein the light pulse transmission device is a closed loop fiber optic cable of a known length.

17. A light clock, as in Claim 15, wherein the counter initiates the light pulse amplifier.

18. A light clock, as in Claim 15, wherein the light pulse detector initiates the light pulse amplifier.

19. A light clock, as in Claim 15, further comprising a controller which provides a user interface to the light clock.

20. A light clock, as in Claim 19, wherein the controller initiates the light pulse amplifier to amplify the light pulse.

21. A light clock, as in Claim 19, wherein the controller modulates the light pulse amplifier.

22. A light clock, as in Claim 19, wherein the controller initiates the light pulse source to generate the light pulse onto the light pulse source entry point.

23. A light clock, as in Claim 16, wherein the light clock further comprises a fiber optic tap/splitter as the light pulse source entry point.

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24. A light clock, as in Claim 16, wherein the light clock further comprises a fiber optic tap/splitter within the closed loop for splitting a portion of the light pulse in the closed loop fiber optic cable to the light pulse detector.

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25. A light clock, as in Claim 24, wherein the fiber optic tap/splitter splits no more than ten percent of the light pulse from within the closed loop fiber optic cable.

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26. A light clock, as in Claim 24, the fiber optic tap/splitter further comprising at least four fiber optic tap/splitters within the closed loop for splitting a portion of the light pulse in the closed loop fiber optic cable to the light pulse detector.

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27. A light clock, as in Claim 16, wherein the light pulse source is a pulsed laser.

28. A light clock, as in Claim 16, wherein the light pulse source is a pulsed laser having a wavelength of 1550 nanometers.

29. A light clock, as in Claim 16, wherein the light pulse amplifier comprises:

a) a first wavelength division multiplexing device having inputs of the light pulse from the closed loop fiber optic cable and an amplifying light to a combined output of the light pulse and the amplifying light;

b) a second wavelength division multiplexing device having an input of the combined light pulse and the amplifying light and outputs of the light pulse, now amplified, to the closed loop fiber optic cable and the amplifying light; and

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c) a rare earth doped fiber optic cable connecting the output of the first wavelength division multiplexing device to the input of the second wavelength division multiplexing device.

27 30. A light clock, as in Claim 26 29, wherein the amplifying light pulse is a continuous laser having a wavelength of 1310 nanometers.

28 31. A light clock, as in Claim 14 15, wherein the light pulse transmission device is a closed loop having mirrored surfaces with at least three points of reflection.

29 32. A light clock, as in Claim 28 31, wherein the light pulse transmission device is a closed loop having mirrored surfaces with at least one of the three points of reflection being a partially reflecting mirrored surface.